

## A

**Aerial Fuels:** All live and dead vegetation in the forest canopy or above surface fuels, including tree branches, twigs and cones, snags, moss and high brush.

**Aerial Ignition:** Ignition of fuels by dropping incendiary devices or materials from aircraft.

**Agency:** Any federal, state or county government organization participating with jurisdictional responsibilities.

**Air Tanker:** A fixed-wing aircraft equipped to drop fire retardants or suppressants.

**Anchor Point:** An advantageous location, usually a barrier to fire spread, from which to start building a fire line. An anchor point is used to reduce the chance of firefighters being flanked by fire.

**Aramid:** The generic name for a high-strength, flame-resistant synthetic fabric used in the shirts and pants of firefighters. Nomex, a brand name for aramid fabric, is the term commonly used by firefighters.

**Aspect:** Direction toward which a slope faces.

## B

**Backfire:** A fire set along the inner edge of a fireline to consume the fuel in the path of a wildland fire and/or change the direction of force of the fire's convection column.

**Backing Fire:** Fire that is moving into the wind.

See also **Heading** and **Flanking Fire**.

**Bambi Bucket:** A collapsible bucket slung below a helicopter. Used to dip water from a variety of sources for fire suppression.

**Backpack Pump:** A portable sprayer with hand-pump, fed from a liquid-filled container fitted with straps, used mainly in fire and pest control.

See also **Bladder Bag**.

**Behave:** A system of interactive computer programs for modeling fuel and fire behavior that consists of two systems: BURN and FUEL.

**Blackline:** Refers to fuels that have burned, either intentionally or not. Many prescribed fire and wildland fire suppression techniques are based on the concept of blackline as a barrier to fire spread.

**Bladder Bag:** A collapsible backpack portable sprayer made of neoprene or high-strength nylon fabric fitted with a pump.

See also **Backpack Pump**.

**Blow-up:** A sudden increase in fire intensity or rate of spread strong enough to prevent direct control or to upset control plans. Blow-ups are often accompanied by violent convection and may have other characteristics of a fire storm.

See also **Flare-up**.

**Brush:** A collective term that refers to stands of vegetation dominated by shrubby, woody plants, or low growing trees, usually of a type undesirable for livestock or timber management.

**Brush Fire:** A fire burning in vegetation that is predominantly shrubs, brush and scrub growth.

**Bucket Drops:** The dropping of fire retardants or suppressants from specially designed buckets slung below a helicopter.

**Buffer Zones:** An area of reduced vegetation that separates wildlands from vulnerable residential or business developments. This barrier is similar to a greenbelt in that it is usually used for another purpose such as agriculture, recreation areas, parks or golf courses.

**Bump-up Method:** A progressive method of building a fire line on a wildland fire without changing relative positions in the line. Work is begun with a suitable space between workers. Whenever one worker overtakes another, all workers ahead move one space forward and resume work on the uncompleted part of the line. The last worker does not move ahead until completing his or her space.

**Burn Out:** Setting fire inside a control line to widen it or consume fuel between the edge of the fire and the control line.

**Burning Ban:** A declared ban on open air burning within a specified area, usually due to sustained high fire danger.

**Burning Conditions:** The state of the combined factors of the environment that affect fire behavior in a specified fuel type.

**Burning Index:** An estimate of the potential difficulty of fire containment as it relates to the flame length at the most rapidly spreading portion of a fire's perimeter.

**Burning Period:** That part of each 24-hour period when fires spread most rapidly, typically from 10:00 a.m. to sundown.

## C

**Campfire:** As used to classify the cause of a wildland fire, a fire that was started for cooking or warming that spreads sufficiently from its source to require action by a fire control agency.

**Candle or Candles:** A single tree or a very small clump of trees which is burning from the bottom up.

**Carrier Fuel:** Fuels that allow a fire to spread and "carry" through the forest. These are generally lighter fuels such as conifer needles, leaves, cured grass and small twigs.

**Catface:** General term used to describe the triangular wound found at the base of a tree and often caused by fire. From one to many fire scar lesions caused by individual fire events can be found within the catface.

**Chain:** A unit of linear measurement equal to 66 feet or approximately 20 meters.

**Closure:** Legal restriction, but not necessarily elimination of specified activities such as smoking, camping or entry that might cause fires in a given area.

**Cold Front:** The leading edge of a relatively cold air mass that displaces warmer air. The heavier cold air may cause some of the warm air to be lifted. If the lifted air contains enough moisture, the result may be cloudiness, precipitation, and thunderstorms. If both air masses are dry, no clouds may form. Following the passage of a cold front in the Northern Hemisphere, westerly or northwesterly winds of 15 to 30 or more miles per hour often continue for 12 to 24 hours.

**Cold Trailing:** A method of controlling a partly dead fire edge by carefully inspecting and feeling with the hand for heat to detect any fire, digging out every live spot and trenching any live edge.

**Command Staff:** The command staff consists of the information officer, safety officer and liaison officer. They report directly to the incident commander and may have assistants.

**Complex:** Two or more individual incidents located in the same general area which are assigned to a single incident commander or unified command.

**Conduction:** The movement of heat from one molecule to another.

**Contain a fire:** A fuel break around the fire has been completed. This break may include natural barriers or manually and/or mechanically constructed line.

**Control a fire:** The complete extinguishment of a fire, including spot fires. Fireline has been strengthened so that flare-ups from within the perimeter of the fire will not break through this line.

**Control Line:** All built or natural fire barriers and treated fire edge used to control a fire.

**Cooperating Agency:** An agency supplying assistance other than direct suppression, rescue, support, or service functions to the incident control effort; e.g., Red Cross, law enforcement agency, telephone company, etc.

**Coyote Tactics:** A progressive line construction duty involving self-sufficient crews that build fire line until the end of the operational period, remain at or near the point while off duty, and begin building fire line again the next operational period where they left off.

**Creeping Fire:** Fire burning with a low flame and spreading slowly.

**Crew Boss:** A person in supervisory charge of usually 16 to 21 firefighters and responsible for their performance, safety and welfare.

**Crown Fire (Crowning):** The movement of fire through the crowns of trees or shrubs more or less independently of the surface fire.

**Curing:** Drying and browning of herbaceous vegetation or slash.

## D

**Dead Fuels:** Fuels with no living tissue in which moisture content is governed almost entirely by atmospheric moisture (relative humidity and precipitation), dry-bulb temperature and solar radiation.

**Debris Burning:** A fire spreading from any fire originally set for the purpose of clearing land or for rubbish, garbage, range, stubble or meadow burning.

**Defensible Space:** An area either natural or manmade where material capable of causing a fire to spread has been treated, cleared, reduced, or changed to act as a barrier between an advancing wildland fire and the loss of life, property, or resources. In practice, "defensible space" is defined as an area of a minimum of 30 feet around a structure that is cleared of flammable brush or vegetation.

**Deployment:** See **Fire Shelter Deployment**.

**Detection:** The act or system of discovering and locating fires.

**Direct Attack:** Any treatment of burning fuel, such as by wetting, smothering, or chemically quenching the fire or by physically separating burning from unburned fuel.

**Dispatch:** The implementation of a command decision to move a resource or resources from one place to another.

**Dispatcher:** A person employed who receives reports of discovery and status of fires, confirms their locations, takes action promptly to provide people and equipment likely to be needed for control in first attack and sends them to the proper place.

**Dispatch Center:** A facility from which resources are directly assigned to an incident.

**Division:** Divisions are used to divide an incident into geographical areas of operation. Divisions are established when the number of resources exceeds the span-of-control of the operations chief. A division is located within the Incident Command System organization between the branch and the task force/strike team.

**Dozer:** Any tracked vehicle with a front-mounted blade used for exposing mineral soil.

**Dozer Line:** Fire line constructed by the front blade of a dozer.

**Drip Torch:** Hand-held device for igniting fires by dripping flaming liquid fuel on the materials to be burned; consists of a fuel fount, burner arm and igniter. Fuel used is generally a mixture of diesel and gasoline.

**Drop Zone:** Target area for air tankers, helitankers, and cargo dropping.

**Drought Index:** A number representing net effect of evaporation, transpiration and precipitation in producing cumulative moisture depletion in deep duff or upper soil layers.

**Dry Lightning Storm:** Thunderstorm in which negligible precipitation reaches the ground. Also called a dry storm.

**Duff:** The layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles and leaves and immediately above the mineral soil.

## E

**Energy Release Component (ERC):** The computed total heat released per unit area (British thermal units per square foot) within the fire front at the head of a moving fire.

**Engine:** Any ground vehicle providing specified levels of pumping, water and hose capacity.

**Engine Crew:** Firefighters assigned to an engine. The Fireline Handbook defines the minimum crew makeup by engine type.

**Entrapment:** A situation where personnel are unexpectedly caught in a fire behavior-related, life-threatening position where planned escape routes or safety zones are absent, inadequate or compromised. An entrapment may or may not include deployment of a fire shelter for its intended purpose. These situations may or may not result in injury. They include "near misses."

**Environmental Assessment (EA):** EAs were authorized by the National Environmental Policy Act (NEPA) of 1969. They are concise, analytical documents prepared with public participation that determine if an Environmental Impact Statement (EIS) is needed for a particular project or action. If an EA determines an EIS is not needed, the EA becomes the document allowing agency compliance with NEPA requirements.

**Environmental Impact Statement (EIS):** EIS's were authorized by the National Environmental Policy Act (NEPA) of 1969. Prepared with public participation, they assist decision makers by providing information, analysis and an array of action alternatives, allowing managers to see the probable effects of decisions on the environment. Generally, EIS's are written for large-scale actions or geographical areas.

**Equilibrium Moisture Content:** Moisture content that a fuel particle will attain if exposed for an infinite period in an environment of specified constant temperature and humidity. When a fuel particle reaches equilibrium moisture content, net exchange of moisture between it and the environment is zero.

**Escape Route:** A preplanned and understood route firefighters take to move to a safety zone or other low-risk area, such as an already burned area, previously constructed safety area, a meadow that won't burn, natural rocky area that is large enough to take refuge without being burned. When escape routes deviate from a defined physical path, they should be clearly marked (flagged).

**Escaped Fire:** A fire which has exceeded or is expected to exceed initial attack capabilities or prescription.

**Extended Attack Incident:** A wildland fire that has not been contained or controlled by initial attack forces and for which more firefighting resources are arriving, en route, or being ordered by the initial attack incident commander.

**Extreme Fire Behavior:** *Extreme* implies a level of fire behavior characteristics that ordinarily precludes methods of direct control action. One of more of the following is usually involved: high rate of spread, presence of fire whirls strong convection column, prolific crowning and/or spotting. Predictability is difficult because such fires often exercise some degree of influence on their environment and behave erratically, sometimes dangerously.

## F

**Faller:** A person who fells trees. Also called a sawyer or cutter.

**Field Observer:** Person responsible to the Situation Unit Leader for collecting and reporting information about an incident obtained from personal observations and interviews.

**Fine (Light) Fuels:** Fast-drying fuels, generally with a comparatively high surface area-to-volume ratio, which are less than 1/4-inch in diameter and have a timelag of one hour or less. These fuels readily ignite and are rapidly consumed by fire when dry.

*See also flash fuels.*

**Fingers of a Fire:** The long narrow extensions of a fire projecting from the main body.

**Fire Behavior:** The manner in which a fire reacts to the influences of fuel, weather and topography.

**Fire Behavior Forecast:** Prediction of probable fire behavior, usually prepared by a Fire Behavior Officer, in support of fire suppression or prescribed burning operations.

**Fire Behavior Specialist:** A person responsible to the Planning Section Chief for establishing a weather data collection system and for developing fire behavior predictions based on fire history, fuel, weather and topography.

**Fire Break:** A natural or constructed barrier used to stop or check fires that may occur, or to provide a control line from which to work.

**Fire Cache:** A supply of fire tools and equipment assembled in planned quantities or standard units at a strategic point for exclusive use in fire suppression.

**Fire Crew:** An organized group of firefighters under the leadership of a crew leader or other designated official.

**Fire Cycle:**

1. A fire-return interval calculated using a negative exponential (or Weibull) distribution, applied using current age-class structure on the landscape.
2. Length of time required to burn an area equal in size to a specified area.

**Fire Event:** A single fire or series of fires within an area at a particular time.

**Fire Extent:** The area burned per time period or event.

**Fire-Free Interval:** Time between two successive fire events at a given site or an area of a specified size. **Fire Frequency:** The return interval or recurrence interval of fire in a given area over a specific time.

**Fire Front:** The part of a fire within which continuous flaming combustion is taking place. Unless otherwise specified the fire front is assumed to be the leading edge of the fire perimeter. In ground fires, the fire front may be mainly smoldering combustion.

**Fire Intensity:** A general term relating to the heat energy released by a fire.

**Fireline:** A linear fire barrier that is scraped or dug to mineral soil.

**Fire Load:** The number and size of fires historically experienced on a specified unit over a specified period (usually one day) at a specified index of fire danger.

**Fire Management Plan (FMP):** A strategic plan that defines a program to manage wildland and prescribed fires and documents the Fire Management Program in the approved land use plan. The plan is supplemented by operational plans such as preparedness plans, preplanned dispatch plans, prescribed fire plans and prevention plans.

**Fire Names:** The normal procedure or protocol is that a fire is named by the Incident Commander. The name is usually taken from some local geological feature.

**Fire Predictability:** A measure of variation in fire frequency expressed as a range, standard deviation or standard error.

**Fire Perimeter:** The entire outer edge or boundary of a fire.

**Fire Predictability:** A measure of variation in fire frequency expressed as a range, standard deviation or standard error.

**Fire Regime:** The combination of fire frequency, predictability, intensity, seasonality and size characteristics of fire in a particular ecosystem.

**Fire-Return Interval:** The number of years between two successive fire events at a specific site or an area of a specified size.

**Fire Rotation:** The length of time necessary to burn an area the size of a specific area (for example a watershed).

**Fire Season:**

1. Period(s) of the year during which wildland fires are likely to occur, spread and affect resource values sufficient to warrant organized fire management activities.
2. A legally enacted time during which burning activities are regulated by state or local authority.

**Fire Severity:** The effect of fire on plants. It is dependant on intensity and residence of the burn. An intense fire may not necessarily be severe. For trees, severity is often measured as percentage of basal area removed.

**Fire Shelter:** An aluminized tent offering protection by means of reflecting radiant heat and providing a volume of breathable air in a fire entrapment situation. Fire shelters should only be used in life-threatening situations as a last resort.

**Fire Shelter Deployment:** The removing of a fire shelter from its case and using it as protection against fire.

**Fire Storm:** Violent convection caused by a large continuous area of intense fire. Often characterized by destructively violent surface indrafts, near and beyond the perimeter, and sometimes by tornado-like whirls.

**Fire Triangle:** Instructional aid in which the sides of a triangle are used to represent the three factors (oxygen, heat, fuel) necessary for combustion and flame production; removal of any of the three factors causes flame production to cease.

**Fire Use Module (Prescribed Fire Module):** A team of skilled and mobile personnel dedicated primarily to prescribed fire management. These are national and interagency resources, available throughout the prescribed fire season, that can ignite, hold and monitor prescribed fires.

**Fire Weather:** Weather conditions that influence fire ignition, behavior and suppression.

**Fire Weather Watch:** A term used by fire weather forecasters to notify using agencies, usually 24 to 72 hours ahead of the event, that current and developing meteorological conditions may evolve into dangerous fire weather.

**Fire Whirl:** Spinning vortex column of ascending hot air and gases rising from a fire and carrying aloft smoke, debris and flame. Fire whirls range in size from less than one foot to more than 500 feet in diameter. Large fire whirls have the intensity of a small tornado.

**Firefighting Resources:** All people and major items of equipment that can or potentially could be assigned to fires.

**Fireline Intensity:** The rate of heat release along a unit length of fireline, measured in kW m<sup>-1</sup>.

**Flame Height:** The average maximum vertical extension of flames at the leading edge of the fire front. Occasional flashes that rise above the general level of flames are not considered. This distance is less than the flame length if flames are tilted due to wind or slope.

**Flame Length:** The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface); an indicator of fire intensity.

**Flaming Front:** The zone of a moving fire where the combustion is primarily flaming. Behind this flaming zone combustion is primarily glowing. Light fuels typically have a shallow flaming front, whereas heavy fuels have a deeper front. Also called fire front.

**Flanks of a Fire:** The parts of a fire's perimeter that are roughly parallel to the main direction of spread.

**Flanking Fire:** Fire that is moving perpendicular to the wind.

*See also Heading and Backing Fire.*

**Flare-up:** Any sudden acceleration of fire spread or intensification of a fire. Unlike a blow-up, a flare-up lasts a relatively short time and does not radically change control plans.

*See also Blow-up.*

**Flash Fuels:** Fuels such as grass, leaves, draped pine needles, fern, tree moss and some kinds of slash, that ignite readily and are consumed rapidly when dry.

*See also Fine Fuels.*

**Foam:** Water in which a surfactant has been added at the pump. Foam insulates fuels against heat, increases the penetration of water into fuels and decreases evaporation.

**Foehn Wind:** A dry wind associated with windflow down the lee side of a plateau or mountain range and with adiabatic warming. Also called Santa Ana (southern California), Mono or North Wind (north and central California), East Wind (western Washington and Oregon) or Chinooks (east side of Rockies).

**Forb:** A plant with a soft, rather than permanent woody stem, that is not a grass or grass-like plant.

**Fuel:** Combustible material. Includes, vegetation, such as grass, leaves, ground litter, plants, shrubs and trees, that feed a fire.

*See also Surface Fuels.*

**Fuel Bed:** An array of fuels usually constructed with specific loading, depth and particle size to meet experimental requirements; also, commonly used to describe the fuel composition in natural settings.

**Fuel Loading:** The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area.

**Fuel Model:** Simulated fuel complex (or combination of vegetation types) for which all fuel descriptors required for the solution of a mathematical rate of spread model have been specified.

**Fuel Moisture (Fuel Moisture Content):** The quantity of moisture in fuel expressed as a percentage of the weight when thoroughly dried at 212 degrees Fahrenheit.

**Fuel Reduction:** Manipulation, including combustion, or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to control.

**Fuel Type:** An identifiable association of fuel elements of a distinctive plant species, form, size, arrangement or other characteristics that will cause a predictable rate of fire spread or difficulty of control under specified weather conditions.

**Fusee:** A colored flare designed as a railway warning device and widely used to ignite prescription fires and backfires.

## G

**General Staff:** The group of incident management personnel reporting to the incident commander. They may each have a deputy, as needed. Staff consists of operations section chief, planning section chief, logistics section chief and finance/administration section chief.

**Geographic Area:** A political boundary designated by the wildland fire protection agencies, where these agencies work together in the coordination and effective utilization of fire management resources.

**Ground Fire (or surface fire):** Fire burning on the ground or through the understory and not reaching into the canopy.

**Ground Fuel:** All combustible materials below the surface litter, including duff, tree or shrub roots, punchy wood, peat and sawdust, that normally support a glowing combustion without flame.

## H

**Haines Index:** An atmospheric index used to indicate the potential for wildland fire growth by measuring the stability and dryness of the air over a fire.

**Hand Line:** A fireline built with hand tools.

**Hazard Reduction:** Any treatment of a hazard that reduces the threat of ignition and fire intensity or rate of spread.

**Head of a Fire:** The side of the fire having the fastest rate of spread.

**Heading Fire:** Fire that is moving with the wind.

*See also Backing and Flanking Fire.*

**Heavy Fuels:** Fuels of large diameter such as snags, logs and large limb wood, that ignite and are consumed more slowly than flash fuels.

**Helibase:** The main location within the general incident area for parking, fueling, maintaining and loading helicopters. The helibase is usually located at or near the incident base.

**Helispot:** A temporary landing spot for helicopters.

**Helitack:** The use of helicopters to transport crews, equipment and fire retardants or suppressants to the fire line during the initial stages of a fire.

**Helitack Crew:** A group of firefighters trained in the technical and logistical use of helicopters for fire suppression.

**Holding Actions:** Planned actions required to achieve wildland fire use or prescribed fire management objectives. These actions have specific implementation timeframes for fire use actions but can have less sensitive implementation demands for suppression actions. Also, the name of a musical group made up of NPS Fire employees.

**Holding Resources:** Firefighting personnel and equipment assigned to do all required fire suppression work following fireline construction but generally not including extensive mop-up.

**Hose Lay:** Arrangement of connected lengths of fire hose and accessories on the ground, beginning at the first pumping unit and ending at the point of water delivery.

**Hotshot Crew:** A highly trained fire crew used mainly to build fireline by hand.

**Hotspot:** A particular active part of a fire.

**Hotspotting:** Reducing or stopping the spread of fire at points of particularly rapid rate of spread or special threat, generally the first step in prompt control, with emphasis on first priorities.

## I

**Incident:** A human-caused or natural occurrence, such as wildland fire, that requires emergency service action to prevent or reduce the loss of life or damage to property or natural resources.

**Incident Action Plan (IAP):** Contains objectives reflecting the overall incident strategy and specific tactical actions and supporting information for the next operational period. The plan may be oral or written. When written, the plan may have a number of attachments, including: incident objectives, organization assignment list, division assignment, incident radio communication plan, medical plan, traffic plan, safety plan and incident map.



**Incident Command Post (ICP):** Location at which primary command functions are executed. The ICP may be co-located with the incident base or other incident facilities.

**Incident Command System (ICS):** The combination of facilities, equipment, personnel, procedure and communications operating within a common organizational structure, with responsibility for the management of assigned resources to effectively accomplish stated objectives pertaining to an incident.

**Incident Commander:** Individual responsible for the management of all incident operations at the incident site.

**Incident Management Team:** The incident commander and appropriate general or command staff personnel assigned to manage an incident.

**Incident Objectives:** Statements of guidance and direction necessary for selection of appropriate strategy(ies), and the tactical direction of resources. Incident objectives are based on realistic expectations of what can be accomplished when all allocated resources have been effectively deployed.

**Infrared Detection:** The use of heat sensing equipment, known as Infrared Scanners, for detection of heat sources that are not visually detectable by the normal surveillance methods of either ground or air patrols.

**Initial Attack:** The actions taken by the first resources to arrive at a wildland fire to protect lives and property and prevent further extension of the fire.

**Inversion:** Under high pressure and stable air conditions, warm air may cap cooler air, forming an inversion that traps smoke in valley bottoms, particularly at night.

## J

**Jackpot:** A pocket of heavy fuels (e.g., downed logs) that may flare up in an area where the fuel load is otherwise low.

**Job Hazard Analysis:** This analysis of a project is completed by staff to identify hazards to employees and the public. It identifies hazards, corrective actions and the required safety equipment to ensure public and employee safety.

**Jump Spot:** Selected landing area for smokejumpers.

**Jump Suit:** Approved protection suit worn by smokejumpers.

## K

**Keech Byram Drought Index (KBDI):** Commonly-used drought index adapted for fire management applications, with a numerical range from 0 (no moisture deficiency) to 800 (maximum drought).

**Knock Down:** To reduce the flame or heat on the more vigorously burning parts of a fire edge.

## L

**Ladder Fuels:** Fuels which provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help initiate and assure the continuation of crowning.

**Large Fire:**

1. For statistical purposes, a fire burning more than a specified area of land e.g., 300 acres.
2. A fire burning with a size and intensity such that its behavior is determined by interaction between its own convection column and weather conditions above the surface.

**Lead Plane:** Aircraft with pilot used to make dry runs over the target area to check wing and smoke conditions and topography and to lead air tankers to targets and supervise their drops.

**Light (Fine) Fuels:** Fast-drying fuels, generally with a comparatively high surface area-to-volume ratio, which are less than 1/4-inch in diameter and have a timelag of one hour or less. These fuels readily ignite and are rapidly consumed by fire when dry.

**Lightning Activity Level (LAL):** A number, on a scale of 1 to 6, that reflects frequency and character of cloud-to-ground lightning. The scale is exponential, based on powers of 2 (i.e., LAL 3 indicates twice the lightning of LAL 2).

**Line Scout:** A firefighter who determines the location of a fireline.

**Litter:** Top layer of the forest, scrubland, or grassland floor, directly above the fermentation layer, composed of loose debris of dead sticks, branches, twigs and recently fallen leaves or needles, little altered in structure by decomposition.

**Live Fuels:** Living plants, such as trees, grasses and shrubs, in which the seasonal moisture content cycle is controlled largely by internal physiological mechanisms, rather than by external weather influences.

**Lost Ignition:** A natural ignition that was suppressed. Some agencies may re-ignite a lost ignition at a more convenient, later date to salvage a natural process.

**Lookout:** A member of a fire crew whose job is to monitor local weather conditions and to identify and report potential dangers resulting from a change in fire behavior or weather. A lookout may also refer to a fire watch tower or to the employees stationed there whose job is to detect fire starts.

## M

**Mass Transfer:** As used in the fire literature, the movement of heat by burning firebrands.

**Master Fire Chronology:** A chronology of all documented fire dates in a designated area determined by crossdating.

**Mean Fire-Return Interval:** (or mean fire-free interval, or mean fire interval) Arithmetic average of all fire-return intervals for a specific site for a specific interval of time.

**Micro-Remote Environmental Monitoring System (Micro-REMS):** Mobile weather monitoring station. A Micro-REMS usually accompanies an incident meteorologist and ATMU to an incident.

**Mineral Soil:** Soil layers below the predominantly organic horizons; soil with little combustible material.

**Mobilization:** The process and procedures used by all organizations, federal, state and local for activating, assembling and transporting all resources that have been requested to respond to or support an incident.

**Modular Airborne Firefighting System (MAFFS):** A manufactured unit consisting of five interconnecting tanks, a control pallet and a nozzle pallet, with a capacity of 3,000 gallons, designed to be rapidly mounted inside an unmodified C-130 (Hercules) cargo aircraft for use in dropping retardant on wildland fires.

**Mop-up:** To make a fire safe or reduce residual smoke after the fire has been controlled by extinguishing or removing burning material along or near the control line, felling snags or moving logs so they won't roll downhill.

**Multi-Agency Coordination (MAC):** A generalized term which describes the functions and activities of representatives of involved agencies and/or jurisdictions who come together to make decisions regarding the prioritizing of incidents, and the sharing and use of critical resources. The MAC organization is not a part of the on-scene ICS and is not involved in developing incident strategy or tactics.

**Mutual Aid Agreement:** Written agreement between agencies and/or jurisdictions in which they agree to assist one another upon request, by furnishing personnel and equipment.

## N

**National Environmental Policy Act (NEPA):** NEPA is the basic national law for protection of the environment, passed by Congress in 1969. It sets policy and procedures for environmental protection and authorizes Environmental Impact Statements and Environmental Assessments to be used as analytical tools to help federal managers make decisions.

**National Fire Danger Rating System (NFDRS):** A uniform fire danger rating system that focuses on the environmental factors that control the moisture content of fuels.

**National Wildfire Coordinating Group (NWCG):** A group formed under the direction of the Secretaries of Agriculture and the Interior and comprised of representatives of the U.S. Forest Service, Bureau of Land Management, Bureau of Indian Affairs, National Park Service, U.S. Fish and Wildlife Service and Association of State Foresters. The group's purpose is to facilitate coordination and effectiveness of wildland fire activities and provide a forum to discuss, recommend action or resolve issues and problems of substantive nature. NWCG is the certifying body for all courses in the National Fire Curriculum.

**Nomex ®:** Trade name for a fire resistant synthetic material used in the manufacturing of flight suits and pants and shirts used by firefighters.

*See also Aramid.*

**Normal Fire Season:**

1. A season when weather, fire danger and number and distribution of fires are about average.
2. Period of the year that normally comprises the fire season.

## O

**Operations Branch Director:** Person under the direction of the operations section chief who is responsible for implementing that portion of the incident action plan appropriate to the branch.

**Operational Period:** The period of time scheduled for execution of a given set of tactical actions as specified in the Incident Action Plan. Operational periods can be of various lengths, although usually not more than 24 hours.

**Overhead:** People assigned to supervisory positions, including incident commanders, command staff, general staff, directors, supervisors, and unit leaders.

## P

**Pack Test:** Used to determine the aerobic capacity of fire suppression and support personnel and assign physical fitness scores. The test consists of walking a specified distance, with or without a weighted pack, in a predetermined period of time, with altitude corrections.

**Paracargo:** Anything dropped, or intended for dropping, from an aircraft by parachute, by other retarding devices or by free fall.

**Peak Fire Season:** That period of the fire season during which fires are expected to ignite most readily, to burn with greater than average intensity and to create damages at an unacceptable level.

**Personnel Protective Equipment (PPE):** All firefighting personnel must be equipped with proper equipment and clothing in order to mitigate the risk of injury from, or exposure to, hazardous conditions encountered while working. PPE includes, but is not limited to: 8-inch high-laced leather boots with lug soles, fire shelter, hard hat with chin strap, goggles, ear plugs, aramid shirts and trousers, leather gloves and individual first aid kits.

**Preheating:** An increase in the flammability of fuels due to exposure to heat and convective wind ahead of a fire.

**Preparedness:** Condition or degree of being ready to cope with a potential fire situation.

**Prescribed Fire:** Any fire ignited by management actions under certain, predetermined conditions to meet specific objectives related to hazardous fuels or habitat improvement. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

**Prescribed Fire Plan (Burn Plan):** This document provides the prescribed fire burn boss information needed to implement an individual prescribed fire project.

**Prescription:** Measurable criteria that define conditions under which a prescribed fire may be ignited, guide selection of appropriate management responses, and indicate other required actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social or legal considerations.

**Prevention:** Activities directed at reducing the incidence of fires, including public education, law enforcement, personal contact and reduction of fuel hazards.

**Project Fire:** A fire of such size or complexity that a large organization and prolonged activity is required to suppress it.

**Pulaski:** A combination chopping and trenching tool, which combines a single-bitted axe-blade with a narrow adze-like trenching blade fitted to a straight handle. Useful for grubbing or trenching in duff and matted roots. Well-balanced for chopping.

## R

**Radiant Burn:** A burn received from a radiant heat source.

**Radiant Heat Flux:** The amount of heat flowing through a given area in a given time, usually expressed as calories/square centimeter/ second.

**Rappelling:** Technique of landing specifically trained firefighters from hovering helicopters; involves sliding down ropes with the aid of friction-producing devices.

**Rate of Spread:** The relative activity of a fire in extending its horizontal dimensions. It is expressed as a rate of increase of the total perimeter of the fire, as rate of forward spread of the fire front, or as rate of increase in area, depending on the intended use of the information. Usually it is expressed in chains or acres per hour for a specific period in the fire's history.

**Reburn:** The burning of an area that has been previously burned but that contains flammable fuel that ignites when burning conditions are more favorable; an area that has reburned.

**Red Card:** Fire qualification card issued to fire rated persons showing their training needs and their qualifications to fill specified fire management and support positions in large fire suppression or incident organization.

**Red Flag Warning:** Term used by fire weather forecasters to alert forecast users to an ongoing or imminent critical fire weather pattern.

**Rehabilitation:** The activities necessary to repair damage or disturbance caused by wildland fires or the fire suppression activity.

**Relative Humidity (Rh):** The ratio of the amount of moisture in the air, to the maximum amount of moisture that air would contain if it were saturated. The ratio of the actual vapor pressure to the saturated vapor pressure.

**Remote Automatic Weather Station (RAWS):** An apparatus that automatically acquires, processes, and stores local weather data for later transmission to the GOES Satellite, from which the data is re-transmitted to an earth-receiving station for use in the National Fire Danger Rating System.

**Resources:** Personnel, equipment, services and supplies available, or potentially available, for assignment to incidents. The natural resources of an area, such as timber, grass, watershed values, recreation values and wildlife habitat.

**Resource Management Plan (RMP):** A document prepared by field office staff with public participation and approved by field office managers that provides general guidance and direction for land management activities at a field office. The RMP identifies the need for fire in a particular area and for a specific benefit.

**Resource Order:** An order placed for firefighting or support resources.

**Retardant:** A substance or chemical agent which reduced the flammability of combustibles.

**Run (of a fire):** The rapid advance of the head of a fire with a marked change in fireline intensity and rate of spread from that noted before and after the advance.

**Running:** A rapidly spreading surface fire with a well-defined head.

## S

**Safety Zone:** An area cleared of flammable materials used for escape in the event the line is outflanked or in case a spot fire causes fuels outside the control line to render the line unsafe. In firing operations, crews progress so as to maintain a safety zone close at hand allowing the fuels inside the control line to be consumed before going ahead. Safety zones may also be constructed as integral parts of fuel breaks; they are greatly enlarged areas which can be used with relative safety by firefighters and their equipment in the event of a blowup in the vicinity.

**Scratch Line:** An unfinished preliminary fireline hastily established or built as an emergency measure to check the spread of fire.

**Severity Funding:** Funds provided to increase wildland fire suppression response capability necessitated by abnormal weather patterns, extended drought, or other events causing abnormal increase in the fire potential and / or danger.

**Single Resource:** An individual, a piece of equipment and its personnel complement, or a crew or team of individuals with an identified work supervisor that can be used on an incident.

**Size-up:** To evaluate a fire to determine a course of action for fire suppression.

**Slash:** Debris left after logging, pruning, thinning or brush cutting; includes logs, chips, bark, branches, stumps and broken understory trees or brush.

**Sling Load:** Any cargo carried beneath a helicopter and attached by a lead line and swivel.

**Slop-over:** A fire edge that crosses a control line or natural barrier intended to contain the fire.

**Smokejumper:** A firefighter who travels to fires by aircraft and parachute.

**Smoke Management:** Application of fire intensities and meteorological processes to minimize degradation of air quality during prescribed fires.

**Smoldering Fire:** A fire burning without flame and barely spreading.

**Snag:** A standing dead tree or part of a dead tree from which at least the smaller branches have fallen.

**Spot Fire:** A fire ignited outside.

**Spot Weather Forecast:** A special forecast issued to fit the time, topography and weather of each specific fire. These forecasts are issued upon request of the user agency and are more detailed, timely and specific than zone forecasts.

**Spotter:** In smokejumping, the person responsible for selecting drop targets and supervising all aspects of dropping smokejumpers.

**Spotting:** Behavior of a fire producing sparks or embers that are carried by the wind and start new fires beyond the zone of direct ignition by the main fire.

**Staging Area:** Locations set up at an incident where resources can be placed while awaiting a tactical assignment on a three-minute available basis. Staging areas are managed by the operations section.

**Stand Replacement Fire:** A fire of such intensity and severity that nearly all the trees in a stand are killed. Forests succeeding a stand replacing fire are generally composed of trees that quickly re-establish and are consequently evenly aged.

**Strategy:** The science and art of command as applied to the overall planning and conduct of an incident.

**Structure Fire:** Fire originating in and burning any part or all of any building, shelter or other structure.

**Strike Team:** Specified combinations of the same kind and type of resources, with common communications, and a leader.

**Strike Team Leader:** Person responsible to a division/group supervisor for performing tactical assignments given to the strike team.

**Structure Fire:** Fire originating in and burning any part or all of any building, shelter or other structure.

**Suppressant:** An agent, such as water or foam, used to extinguish the flaming and glowing phases of combustion when directly applied to burning fuels.

**Suppression:** All the work of extinguishing or containing a fire, beginning with its discovery.

**Surface Fire:** A fire burning along the surface without significant movement into the understory or overstory, with flame length usually below 1 m.

**Surface Fuels:** Loose surface litter on the soil surface, normally consisting of fallen leaves or needles, twigs, bark, cones and small branches that have not yet decayed enough to lose their identity; also grasses, forbs, low and medium shrubs, tree seedlings, heavier branchwood, downed logs, and stumps interspersed with or partially replacing the litter.

*See also Fuel.*

**Swamper:**

1. A worker who assists fallers and/or sawyers by clearing away brush, limbs and small trees. Carries fuel, oil and tools and watches for dangerous situations.
2. A worker on a dozer crew who pulls winch line, helps maintain equipment, etc., to speed suppression work on a fire.

## T

**Tactics:** Deploying and directing resources on an incident to accomplish the objectives designated by strategy.

**Temporary Flight Restrictions (TFR):** A restriction requested by an agency and put into effect by the Federal Aviation Administration in the vicinity of an incident which restricts the operation of nonessential aircraft in the airspace around that incident.

**Terra Torch ®:** Device for throwing a stream of flaming liquid, used to facilitate rapid ignition during burn out operations on a wildland fire or during a prescribed fire operation.

**Test Fire:** A small fire ignited within the planned burn unit to determine the characteristic of the prescribed fire, such as fire behavior, detection performance and control measures.

**Timelag:** Time needed under specified conditions for a fuel particle to lose about 63 percent of the difference between its initial moisture content and its equilibrium moisture content. If conditions remain unchanged, a fuel will reach 95 percent of its equilibrium moisture content after four timelag periods.

**Torching:** The ignition and flare-up of a tree or small group of trees, usually from bottom to top.

**Two-way Radio:** Radio equipment with transmitters in mobile units on the same frequency as the base station, permitting conversation in two directions using the same frequency in turn.

**Type:** The capability of a firefighting resource in comparison to another type. Type 1 usually means a greater capability due to power, size, or capacity.

## U

**Uncontrolled Fire:** Any fire which threatens to destroy life, property or natural resources, and either is not burning within the confines of firebreaks, or is burning with such intensity that it cannot be readily distinguished with ordinary tools commonly available.

**Underburn:** A fire that consumes surface fuels but not trees or shrubs. *See also* **Surface Fuels**

**Understory Fire:** A fire burning in the understory, more intense than a surface fire with flame lengths of 1-3 m.

## V

**Vectors:** Directions of fire spread as related to rate of spread calculations (in degrees from upslope).

**Vegetation Type:** A standardized description of the vegetation in which a fire is burning. The type is based on the dominant plant species and the age of the forest and indicates how moist a site may be and how much fuel is likely to be present.

**Volunteer Fire Department (VFD):** A fire department of which some or all members are unpaid.

## W

**Water Repellency:** The resistance to soil wettability, which can be increased by intense fires.

**Water Tender:** A ground vehicle capable of transporting specified quantities of water.

**Weather Information and Management System (WIMS):** An interactive computer system designed to accommodate the weather information needs of all federal and state natural resource management agencies. Provides timely access to weather forecasts, current and historical weather data, the National Fire Danger Rating System (NFDRS) and the National Interagency Fire Management Integrated Database (NIFMID).

**Wet Line:** A line of water, or water and chemical retardant, sprayed along the ground that serves as a temporary control line from which to ignite or stop a low-intensity fire.

**Wildland Fire:** Any nonstructure fire, other than prescribed fire, that occurs in the wildland.

**Wildland Fire Implementation Plan (WFIP):** A progressively developed assessment and operational management plan that documents the analysis and selection of strategies and describes the appropriate management response for a wildland fire being managed for resource benefits.

**Wildland Fire Situation Analysis (WFSa):** A decision-making process that evaluates alternative suppression strategies against selected environmental, social, political and economic criteria. Provides a record of decisions.

**Wildland Fire Use:** The management of naturally ignited wildland fires to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in Fire Management Plans.

**Wildland Urban Interface:** The line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

**Wind Vectors:** Wind directions used to calculate fire behavior.